

WHAT IS CLAIMED IS:

1. A secondary power source, which comprises a positive electrode containing activated carbon, a negative electrode containing  $\text{Li}_4\text{Ti}_5\text{O}_{12}$ , and an organic electrolyte  
5 containing a lithium salt.
2. A secondary power source, which comprises a positive electrode containing activated carbon, a negative electrode containing  $\text{Li}_4\text{Ti}_5\text{O}_{12}$  and a carbon material capable of doping and undoping lithium ions, and an  
10 organic electrolyte containing a lithium salt.
3. The secondary power source according to Claim 2, wherein the carbon material contained in the negative electrode has a lattice spacing  $d_{002}$  of (002)face of from 0.335 to 0.410 nm as measured by an X-ray wide angle  
15 diffraction method.
4. The secondary power source according to Claim 2, wherein in the negative electrode, the proportion of  $\text{Li}_4\text{Ti}_5\text{O}_{12}$  is from 20 to 50 mass%, and the proportion of the carbon material is from 80 to 50 mass%.
- 20 5. The secondary power source according to Claim 1, wherein the electric capacity ratio of the negative electrode to the positive electrode is from 1.05 to 1.8.
6. The secondary power source according to Claim 1, wherein  $\text{Li}_4\text{Ti}_5\text{O}_{12}$  contained in the negative electrode has  
25 a specific surface area of from 1.0 to 3.0  $\text{m}^2/\text{g}$ .
7. The secondary power source according to Claim 1, wherein the lithium salt is at least one member selected

**FOR INFORMATION  
DISCLOSURE  
PURPOSES ONLY**

<b>Related Pending Application</b>
Related Case Serial No: <u>10/092,780</u>
Related Case Filing Date: <u>03/08/02</u>

from the group consisting of  $\text{LiPF}_6$ ,  $\text{LiBF}_4$ ,  $\text{LiClO}_4$ ,  
 $\text{LiN}(\text{SO}_2\text{CF}_3)_2$ ,  $\text{LiN}(\text{SO}_2\text{C}_2\text{F}_5)_2$ ,  $\text{LiCF}_3\text{SO}_3$ ,  $\text{Li}(\text{SO}_3\text{CF}_3)$ ,  
 $\text{LiC}(\text{SO}_2\text{CF}_3)_3$  and  $\text{LiPF}_3(\text{C}_2\text{F}_5)_3$ .

8. The secondary power source according to Claim 1,  
5 wherein the organic electrolyte contains a quaternary  
onium salt in addition to the lithium salt.

9. The secondary power source according to Claim 8,  
wherein the quaternary onium salt contains at least one  
quaternary onium ion selected from the group consisting  
10 of  $(\text{C}_2\text{H}_5)_3(\text{CH}_3)\text{N}^+$ ,  $(\text{C}_2\text{H}_5)_4\text{N}^+$  and  $(\text{C}_2\text{H}_5)_4\text{P}^+$ , and at least one  
counter anion selected from the group consisting of  $\text{PF}_6^-$ ,  
 $\text{BF}_4^-$ ,  $\text{ClO}_4^-$ ,  $\text{N}(\text{SO}_2\text{CF}_3)_2^-$ ,  $\text{N}(\text{SO}_2\text{C}_2\text{F}_5)_2^-$ ,  $\text{CF}_3\text{SO}_3^-$ ,  $\text{C}(\text{SO}_2\text{CF}_3)_3^-$   
and  $\text{PF}_3(\text{C}_2\text{F}_5)_3^-$ .

10. The secondary power source according to Claim 8,  
15 wherein the molar ratio of the quaternary onium ions to  
the lithium ions in the organic electrolyte is from 0.3  
to 2.

11. The secondary power source according to Claim 2,  
wherein the electric capacity ratio of the negative  
20 electrode to the positive electrode is from 1.05 to 1.8.

12. The secondary power source according to Claim 2,  
wherein  $\text{Li}_4\text{Ti}_5\text{O}_{12}$  contained in the negative electrode has  
a specific surface area of from 1.0 to 3.0  $\text{m}^2/\text{g}$ .

13. The secondary power source according to Claim 2,  
25 wherein the lithium salt is at least one member selected  
from the group consisting of  $\text{LiPF}_6$ ,  $\text{LiBF}_4$ ,  $\text{LiClO}_4$ ,  
 $\text{LiN}(\text{SO}_2\text{CF}_3)_2$ ,  $\text{LiN}(\text{SO}_2\text{C}_2\text{F}_5)_2$ ,  $\text{LiCF}_3\text{SO}_3$ ,  $\text{LiC}(\text{SO}_2\text{CF}_3)_3$  and

$\text{LiPF}_3(\text{C}_2\text{F}_5)_3$ .

14. The secondary power source according to Claim 2, wherein the organic electrolyte contains a quaternary onium salt in addition to the lithium salt.

5 15. The secondary power source according to Claim 14, wherein the quaternary onium salt contains at least one quaternary onium ion selected from the group consisting of  $(\text{C}_2\text{H}_5)_3(\text{CH}_3)\text{N}^+$ ,  $(\text{C}_2\text{H}_5)_4\text{N}^+$  and  $(\text{C}_2\text{H}_5)_4\text{P}^+$ , and at least one counter anion selected from the group consisting of  $\text{PF}_6^-$ ,  
10  $\text{BF}_4^-$ ,  $\text{ClO}_4^-$ ,  $\text{N}(\text{SO}_2\text{CF}_3)_2^-$ ,  $\text{N}(\text{SO}_2\text{C}_2\text{F}_5)_2^-$ ,  $\text{CF}_3\text{SO}_3^-$ ,  $\text{C}(\text{SO}_2\text{CF}_3)_3^-$  and  $\text{PF}_3(\text{C}_2\text{F}_5)_3^-$ .

16. The secondary power source according to Claim 14, wherein the molar ratio of the quaternary onium ions to the lithium ions in the organic electrolyte is from 0.3  
15 to 2.

17. The secondary power source according to Claim 4, wherein the electric capacity ratio of the negative electrode to the positive electrode is from 1.05 to 1.8.

18. The secondary power source according to Claim 4,  
20 wherein  $\text{Li}_4\text{Ti}_5\text{O}_{12}$  contained in the negative electrode has a specific surface area of from 1.0 to 3.0  $\text{m}^2/\text{g}$ .

ABSTRACT OF THE DISCLOSURE

A secondary power source, which comprises a positive electrode containing activated carbon, a negative electrode containing  $\text{Li}_4\text{Ti}_5\text{O}_{12}$ , and an organic electrolyte  
5 containing a lithium salt.